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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,950	04/16/2004	Stephen K. Pinto	17146-004001	1603

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EXAMINER
BHARADWAJ, KALPANA

ART UNIT	PAPER NUMBER
2129	

NOTIFICATION DATE	DELIVERY MODE
09/22/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

	Application No.	Applicant(s)
Office Action Summary	10/826,950	PINTO ET AL.
	Examiner	Art Unit	
	KALPANA BHARADWAJ	2129	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>26 June 2008</u>.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-14</u> is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-14</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a) ☐ All b) ☐ Some * c) ☐ None of:

　　　1. ☐ Certified copies of the priority documents have been received.

　　　2. ☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>06/26/2008</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   This Office Action is in response to a Request for Continued Examination filed

June 26, 2008 for application number 10/826950.

Continued Examination Under 37 CFR 1.114

2.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June

26, 2008 has been entered.

Status of Claims

3.   Claims 1-14 are pending. Claims 12-14 are new.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fox (USPN 5,491,629, referred to as **Fox**).

As to **claims 1 and 6**, Fox discloses a machine-based method comprising: receiving historical (**Fox,** C 18 L 50: historical weather data) multi-dimensional data (**Fox,** C 13 L 13-20: weather data 201) representing multiple source variables having different strengths of measurement (**Fox,** C 14 L 60: "k" variables; also see C 06 L 22: weather and other variables; **EN**: climatology in general uses multiple source elements like temperature, precipitation etc. see C 05 L 16) to be used as an input to a predictive model (**Fox,** Abstract: predictive model) of a commercial system (**Fox,** Abstract: Executive Information System (EIS); **EN**: EIS is a representative of a commercial system) , assigning a status to each source variable, the status comprising the variable being a predictor primary variable or a transformed variable or having transformations applied in a variable definition field (**Fox,** C02 L05-40: define source, acquire, and achieve target);

applying a first set of transformations to the source variables (**Fox,** C 13 L 18: transformations of those variables), and

applying a second set of transformations to the data, the second set of transformations being selected based on the strength of measurement represented by a variable (**Fox,** C 05 L 55: weather impact measurement through historical correlation; **EN**: correlation is to establish a relation between variables, and measurement through correlation would be based on the strength of measurement represented by a variable).

Fox does not teach variables selected to increase predictive power. However, it would have been obvious to one with ordinary skills in the art at the time the invention was made to see that since the goal of Fox's invention is to improve productivity (**Fox**, C 04 L 48: improve productivity) by weather forecasting, there would be increased predictive power to support it.

As to the additional limitation in **Claim 6**, Fox discloses adjusting unstable values of the variables (**Fox,** C 14 L 64: regression is the statistical technique employed; **EN:** regression is a statistical technique that deals with adjustment and counter-adjustment) to reduce inaccurate (**Fox,** C15 L 02: more accurately define the observed changes) associations (**Fox,** C 14 L 65: quantify these relationships; **EN:** relationships are associations between variables).

Fox does not teach predictor variables and target variables. However, it would have been obvious to one with ordinary skills in the art at the time the invention was made to see that Fox's system is designed to solve problems related to source and target merchandise (**Fox**, C 02 L 19: source, acquire, and achieve specific target merchandise) using prediction, and therefore, it would be using predictor and target variables.

As to **claim 2**, Fox discloses the method of claim 1 in which the strength of measurement (**Fox**, C 06 L 60: measuring the impact of past weather) comprises at least one of nominal, ordinal, and interval (**Fox**, C 03 L 64: time intervals in specific regions; **EN:** measuring time intervals is 'interval measurement').

As to **claim 3**, Fox discloses the method of claim 1 in which the strength of a measurement (**Fox,** 05 L 55: weather impact measurement) is represented in stored metadata (**Fig. 2**: See blocks 136, 116 and 201; **EN:** metadata is data about data) associated with the data.

As to **claim 4**, Fox discloses the method of claim 1 also including displaying to a user a representation of a response function (**Fox,** C07 L 63: displays the impact of any internal (industry) and external factors; **EN:** Response functions express a cause and effect relationship; A display to show the impact of factors would represent a response function of variables associated with factors being considered).

Fox does not teach specifically, response of a target variable against untransformed, transformed, and target variables associated with the data. However, it would have been obvious to one with ordinary skills in the art at the time the invention was made to see that since Fox's system has a database initializer that transforms the datasets (**Fox,** C 11 L 42: The database initializer 702 transforms the datasets), there would be a mapping of transformed, untransformed and target variables, which is a response function.

As to **claim 5**, Fox discloses the method of claim 1 also including persistently storing (**Fox,** C 02 L 50: mainframe databases for subsequent analysis; **EN:** persistent storage is achieved by any non-volatile storage like a database) both the source

variables and related transformed versions of the source variables (**Fox,** C 12 L 59:

variable database; **EN**: a variable database encompasses all kinds of variables

including source and transformed).

As to **claim 8**, Fox discloses a machine-based method comprising

in connection with a project in which a user generates a predictive model (**Fox,**

Abstract: predictive model) based on historical data about a system being modeled

(**Fox,** C 18 L 50: historical weather data).

Fox does not teach automatically imputing missing values for continuous

variables associated with the data, the variables having different strengths of

measurement. However, it would have been obvious to one with ordinary skills in the

art at the time the invention was made that Fox's invention uses regression (**Fox,** C 14

L 64: regression is the statistical technique employed), and to employ regression one

would use a method like curve-fitting where missing values are imputed, because this

would reduce distortion.

As to **claim 9**, Fox teaches the method of claim 8 in which the user is enabled to

invoke features that displays information as a part of a user interface (**Fox,** C 05 L 62: a

graphical user interface). Fox fails to teach the automatic imputing of variables for

which values are missing. See Claim 8 for rationale for obviousness.

As to **claim 10**, Fox does not teach the method of claim 9 in which the automatic imputing is invoked based on a variable or type of variable.

Reasoning for why automatic imputing is obvious has been discussed in claims 8 and 9. Further, Fox discloses variables (**Fox,** C12 L 51: regression structure file; C12 L 56: regression variables). It would have been obvious to one with ordinary skills in the art at the time the invention was made to see that the imputing would be based on the variable or the type of variable because in order to substitute for missing values they must be of the same type and a system must be aware of that.

As to **claim 11**, Fox teaches the method of claim 9 in which the variables may be used in the model or (**Fox,** C 12 L 59: variable data base normal values map into weather impact model) may be transformed (**Fox,** C 11 L 42: transforms the datasets) for use in the model.

However, Fox does not teach variables for which missing values are imputed. See claims 8 and 9 for obviousness discussion and rationale.

Claim 12:

Fox teaches the machine-based method of claim 1 also includes typing the source variables based on the strength of measurement represented by each variable (**Fox,** C 14 L 60: "k" variables; also see C 06 L 22: weather and other variables; **EN**: climatology in general uses multiple source elements like temperature, precipitation etc. which have different strengths of measurement; see C 05 L 16).

Claim 13:

Fox teaches the machine-based method of claim 12 in which typing the source variables comprises pooling the variables (**Fox,** C 13 L 18: transformations of those variables; **EN:** pooling variables is inherent during transformations).

Claim 14:

Fox teaches the machine-based method of claim 1 in which the strength of measurement comprises interval (**Fox,** C 14 L 60: "k" variables; also see C 06 L 22: weather and other variables; **EN:** climatology in general uses multiple source elements like temperature, precipitation etc. which have different strengths of measurement and interval values; see C 05 L 16).

4.   Claim 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Fox as applied to claim 6 above, and further in view of Lapointe, (USPN 6556977, referred to as **Lapointe**).

As to **claim 7**, Fox does not teach the method of claim 6 in which the adjustment of the unstable values comprises Bayesian renormalization.

However, Lapointe teaches Bayesian decision theory (**Lapointe,** C 02 L 14: Bayesian decision theory). It would have been obvious to one with ordinary skills in the

art at the time the invention was made to combine the two references because they

both relate to decision support functions. Further, by using Bayesian renormalization for

adjusting the unstable values, it would improve the accuracy of the prediction values,

considering the large quantities of variables and complex interactions between variables

involved in weather prediction. Renormalization is an essential step in the estimation

process.

Response to Arguments

2.   Applicant's arguments filed June 26, 2008 have been fully considered but they

are not persuasive.

3.   Regarding Applicant's arguments on page 5 of 8 :

Fox did not disclose "assigning a status to each source variable, ... in a variable

definition field."

Examiner's response:

Refer to (**Fox**, C02 L05-40: define source, acquire, and achieve target). In order to

define, acquire and transform source variables, it is imperative that a status be assigned

and therefore it is inherent.

4.   Regarding Applicant's arguments on page 6 of 8:

Fox does not disclose "adjusting unstable values of variables to reduce ... and target

variables."

Examiner's response:

Refer to (**Fox,** C 14 L 64: regression is the statistical technique employed). Regression

is a statistical technique that deals with adjustment and counter-adjustment.

5.   Regarding Applicant's arguments on page 7 of 8:

Fox does not disclose "automatically imputing missing values … "

Examiner's response:

        Fox's invention uses regression (**Fox,** C 14 L 64: regression is the statistical

technique employed), and to employ regression one would use a method like curve-

fitting where missing values are imputed, in order to reduce distortion.

Examinations Considerations

4.   Examiner's Notes (**EN**) are provided with the cited references to prior art to assist

the applicant to better understand the nature of the prior art, application of such prior art

and, as appropriate, to further indicate other prior art that maybe applied in other office

actions. Such comments are entirely consistent with the intent and spirit of compact

prosecution. However, and unless otherwise stated, the Examiner's Notes are not prior

art but a link to prior art that one of ordinary skill in the art would find inherently

appropriate.

5.   Examiner has cited particular columns and line numbers (or paragraphs) in the

references applied to the claims above for the convenience of the applicant. Although

the specified citations are representative of the teachings of the art and are applied to

specific limitations within the individual claim, other passages and figures may apply as

well. It is respectfully requested from the Applicant in preparing responses, to fully

consider the references in their entirety as potentially teaching all or part of the claimed

invention, as well as the context of the passage as taught by the prior art or disclosed

by the Examiner. The entire reference is considered to provide disclosure relating to

the claimed invention.

Conclusion

6.   Claims 1-14 are rejected.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to KALPANA BHARADWAJ whose telephone number is

(571)270-1641. The examiner can normally be reached on Monday-Friday 7:30am 5:00

pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David Vincent can be reached on (571) 272-3080. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bharadwaj Kalpana/
Examiner, Art Unit 2129
/David R Vincent/
Supervisory Patent Examiner, Art Unit 2129